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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/932,870	08/17/2001	Andrew W. Buffmire	13293.001	6579

50787 7590 07/17/2007

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EXAMINER	
HASHEM, LISA	
ART UNIT	**PAPER NUMBER**
2614	
MAIL DATE	**DELIVERY MODE**
07/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/932,870	BUFFMIRE ET AL.	
	Examiner	Art Unit	
	Lisa Hashem	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 May 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 December 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 5-24-07 with regards to claims 1-15 have been fully considered but they are not persuasive.

2. Applicant argues that the claimed invention discloses '...that there are no other conductive couplings between the transmitter/receivers other than the intrinsic pavement material...' and '...there are no wire or other conductive materials coupling the first and second transmitter/receiver...'. Newly amended claims 1 and 6 include the following new limitations: '...and further wherein the only conductive coupling between the first transmitter/receiver and the second transmitter/receiver is the intrinsic pavement transmitter and antenna...'. The newly added limitations do not recite that the coupling is not wired and there are no other conductive couplings other than the intrinsic pavement material.

Applicant further argues '...the 'coupling' as described and shown in Yoshida (see Fig. 2) appears to be a hardwire connection between the antennas 26 and the devices 28 for splitting and combining the signals from the plurality of antennas...'. Yoshida clearly discloses the only conductive coupling between the first transmitter/receiver (Figs. 2, 4: 30) and the second transmitter/receiver (Figs. 2, 4: 16, 42, 44) is the intrinsic pavement transmitter and antenna (Fig. 2, 26; Fig. 4, 52) (col. 3, lines 19-27 and lines 53-61). The claim does not distinguish a wired coupling versus a wireless coupling, therefore Yoshida still reads on the claim. The Examiner has broadly interpreted 'coupling' to mean either wired or wireless, wherein radio frequency signals can be communicated between the transmitter/receivers. Yoshida further discloses a

wireless conductive coupling between the first transmitter/receiver and the second transmitter/receiver (Figs: 2, 4).

Further, claim 1 of the instant application does not recite '...that the coupling between the transmitters/receivers is the intrinsic pavement material...'.

In conclusion, the prior art still reads on the claimed limitations.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,285,858 by Yoshida and in further view of U.S. Patent Application No. US 2002/0128769 by Der Ghazarian et al, hereinafter Der Ghazarian.

Regarding claim 1, Yoshida discloses a radio communications system (Fig. 2; Fig. 4) comprising:

a) an intrinsic pavement transmitter and antenna (Fig. 2, 26; Fig. 4, 52) for conducting radio frequency signals (col. 3, lines 11-27);

b) a first transmitter/receiver, at a first point along the intrinsic pavement transmitter and antenna (Figs. 2, 4: 30); and

c) a second transmitter/receiver (Figs. 2, 4: 16, 42, 44), at a second point along the intrinsic pavement transmitter and antenna, and in communication with an end-user (e.g. driver of vehicle);

wherein the intrinsic pavement transmitter and antenna conducts radio frequency signals between the first and second transmitter/receiver entirely within the pavement transmitter and antenna (col. 2, line 40 – col. 3, line 27; col. 3, lines 50-61), and further wherein the only conductive coupling between the first transmitter/receiver and the second transmitter/receiver is the intrinsic pavement transmitter and antenna (col. 3, lines 19-27 and lines 53-61).

Yoshida clearly discloses the only conductive coupling between the first transmitter/receiver (Figs. 2, 4: 30) and the second transmitter/receiver (Figs. 2, 4: 16, 42, 44) is the intrinsic pavement transmitter and antenna (Fig. 2, 26; Fig. 4, 52) (col. 3, lines 19-27 and lines 53-61). The claim does not distinguish a wired coupling versus a wireless coupling, therefore Yoshida still reads on the claim. The Examiner has broadly interpreted 'coupling' to mean either wired or wireless, wherein radio frequency signals can be communicated between the transmitter/receivers. Yoshida further discloses a wireless conductive coupling between the first transmitter/receiver and the second transmitter/receiver (Figs: 2, 4).

Yoshida discloses the second transmitter/receiver in communication with an end user and a first transmitter/receiver. However, Yoshida does not disclose the first transmitter/receiver in communication with an end-user.

Der Ghazarian discloses an Electronic Vehicle Monitoring System comprising:
a) a RF electromagnetic Transceiver unit (see Figure 2, 30; page 5, section 0058, lines 18-21); a first transmitter/receiver or parking space transceiver unit (Figure 2, 22), at a first point along a parking space, and in communication with an end-user or employee of a vehicle dealership using computer (page 1, section 0003, lines 1-18; Figure 2, 21); and

c) a second transmitter/receiver or vehicle transceiver unit (Figure 2, 23), at a second point along the parking space, and in communication with an end-user or driver of the vehicle (page 4, section 0040, lines 1-21);

wherein the RF electromagnetic Transceiver unit conducts radio frequency signals between the first and second transmitter/receiver (page 5, section 0058, lines 18-21; page 6, section 0060, line 1 – section 0064, line 12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Yoshida to include a first transmitter/receiver in communication with an end-user as taught by Der Ghazarian. One of ordinary skill in the art would have been lead to make such a modification to provide an end-user to operate the first transmitter/receiver and provide communication between two end-users via radio frequency signals through an intrinsic pavement transmitter and antenna.

Regarding claim 2, the radio communications system of claim 1, wherein Yoshida further discloses the second transmitter/receiver (e.g. antenna) is coupled to the end-user with a hard wire (e.g. on-board unit) (col. 3, lines 11-16).

Regarding claim 3, the radio communications system of claim 1, wherein Yoshida further discloses the second transmitter/receiver is a conductive surface portion of the intrinsic pavement transmitter and antenna (col. 3, lines 11-21).

Regarding claim 4, the radio communications system of claim 1, wherein Yoshida further discloses the first transmitter/receiver is adjacent to the intrinsic pavement transmitter and antenna (col. 2, line 65 – col. 3, line 2; col. 3, lines 53-61; Figs. 2, 4: 30).

Regarding claim 5, the radio communications system of claim 1, wherein Yoshida further discloses the first transmitter/receiver is located in the intrinsic pavement transmitter and antenna (col. 1, lines 55-67; col. 2, line 65 – col. 3, line 2; col. 3, lines 53-61; Figs. 2, 4: 30).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 6, 7, and 10-15 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Yoshida.

Regarding claim 6, Yoshida discloses an intrinsic pavement transmitter and antenna, comprising a roadway (Fig. 3, 24), including:

a) a suitable wearing course material (e.g. road surface); and

b) an effective amount of radio frequency conductive material (Fig. 5, 52'), sufficient to conduct radio frequency signals,

between at least two locations within the pavement (Fig. 4, 52; Fig. 4, 30),

such that the radio frequency signals are conducted entirely within the pavement transmitter and antenna (col. 3, line 11 – col. 4, line 27), and wherein the only conductive coupling between the at least two locations within the pavement is the intrinsic pavement transmitter and antenna (col. 3, lines 19-27 and lines 53-61).

Yoshida clearly discloses the only conductive coupling between the first transmitter/receiver (Figs. 2, 4: 30) and the second transmitter/receiver (Figs. 2, 4: 16, 42, 44) is the intrinsic pavement transmitter and antenna (Fig. 2, 26; Fig. 4, 52) (col. 3, lines 19-27 and lines 53-61). The claim does not distinguish a wired coupling versus a wireless coupling, therefore Yoshida still reads on the claim. The Examiner has broadly interpreted 'coupling' to mean either wired or wireless, wherein radio frequency signals can be communicated between the transmitter/receivers. Yoshida further discloses a wireless conductive coupling between the first transmitter/receiver and the second transmitter/receiver (Figs: 2, 4).

Regarding claim 7, the intrinsic pavement transmitter and antenna of claim 6, wherein Yoshida further discloses the radio frequency conductive material is at least one member selected from a group consisting of: radio frequency transmittable polymers, metal shavings, metal dust, and conductive carbons (col. 3, line 52 – col. 4, line 27).

Regarding claim 10, the intrinsic pavement transmitter and antenna of claim 7, wherein Yoshida further discloses the metal shavings are at least one member selected from a group consisting of: iron, iron alloys, aluminum, aluminum alloys, copper, and copper alloys (col. 3, line 62 – col. 4, line 18).

Regarding claim 11, the intrinsic pavement transmitter and antenna of claim 7, wherein Yoshida further discloses the metal dust is at least one member selected from a group consisting of: iron, iron alloys, aluminum, aluminum alloys, copper, and copper alloys (col. 3, line 62 – col. 4, line 18).

Regarding claim 12, the intrinsic pavement transmitter and antenna of claim

6, wherein Yoshida discloses the suitable wearing course material (e.g. road surface) is at least one member selected from a group inherently consisting of: asphalt and concrete (Fig. 3, 24; col. 1, lines 55-60).

Regarding claim 13, the intrinsic pavement transmitter and antenna of claim 6, wherein Yoshida further discloses the conductive material is intermixed with the wearing course material (Fig. 3, 24; Fig. 4, 52; col. 1, lines 55-60; col. 3, line 61 – col. 4, line 27).

Regarding claim 14, the intrinsic pavement transmitter and antenna of claim 6, wherein Yoshida further discloses the conductive material and the wearing course material are substantially distinct layers (Fig. 3, 24; Fig. 4, 52; col. 1, lines 55-60; col. 3, line 61 – col. 4, line 27).

Regarding claim 15, the intrinsic pavement transmitter and antenna of claim 6, wherein Yoshida further discloses an insulating layer proximate the roadway (Fig. 4, 52).

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida, as applied to claim 6 above, and in further view of U.S. Patent No. 3,962,142 by Freeman et al, hereinafter Freeman.

Regarding claim 8, the intrinsic pavement transmitter and antenna of claim 6, wherein Yoshida discloses a radio frequency conductive material (col. 3, line 62 – col. 4, line 27). However Yoshida does not disclose (a) the conductive carbon is at least one member selected from a group consisting of carbon black, carbon fiber, graphite and coke breeze.

Freeman discloses electrically conducting concrete (see Abstract) comprising: a settable composition for use as a structural material comprising a bonding material and an aggregate, wherein said aggregate contains electrically conducting material comprising a quantity of

relatively large electrically conductive particulate material and a quantity of relatively small electrically conductive particulate material (column 1, lines 46-55). Wherein (a) the conductive carbon is at least one member selected from a group consisting of carbon black, carbon fiber, graphite and coke breeze (see Examples 1-7 in columns 3-4); (b) the suitable wearing course material is at least one member selected from a group consisting of: asphalt and concrete (column 7, lines 52-66); and (c) the conductive material is intermixed with the wearing course material (column 7, lines 52-66).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the intrinsic pavement and transmitter of Yoshida to include conductive carbon as taught by Freeman. One of ordinary skill in the art would have been lead to make such a modification since the conductive carbon will provide an electrically conducting roadway.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida, as applied to claim 7 above, and in further view of U.S. Patent No. 5,460,649 by Strassman.

Regarding claim 9, the intrinsic pavement transmitter and antenna of claim 7, wherein Yoshida discloses a protective resin film is used to cover the outer tube (Fig. 4, 56; col. 3, line 62 – col. 4, line 18).

However, Yoshida does not disclose the radio frequency transmittable polymers include: polyacetylene, polyaniline, polypyrrole, polythiophenes, polyethylenedioxythiophene and poly(p-phenylene vinylene)s.

Strassman discloses a fiber-reinforced rubber asphalt composition (see Abstract) comprising: composition that is more durable, longer lasting, more resilient, and less prone to cracking. Wherein fibrous materials employed in the composition are preferably synthetic

organic fibers. Examples of suitable polyester fibers include: poly(ethylene terephthalate), poly(1,4-cyclohexanemethylene terephthalate), poly(vinyl acetate), poly(methyl acrylate), poly (methyl methacrylate), and poly(hexamethylene fumarate) (column 2, lines 52-64; column 5, line 61 – column 6, line 7).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the intrinsic pavement transmitter and antenna of Yoshida to include radio frequency transmittable polymers as taught by Strassman. One of ordinary skill in the art would have been lead to make such a modification since a fiber-reinforced rubber asphalt composition will provide an electrically conducting roadway.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892 Form.

10. Any response to this action should be mailed to:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Or faxed to:

(571) 273-8300 (for formal communications intended for entry)

Or call:

(571) 272-2600 (for customer service assistance)

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lisa Hashem whose telephone number is (571) 272-7542. The examiner can normally be reached on M-F 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang can be reached on (571) 272-7547. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-2600.

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gerald Gardner
Primary Exam.
Art Unit 2614

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July 7, 2007